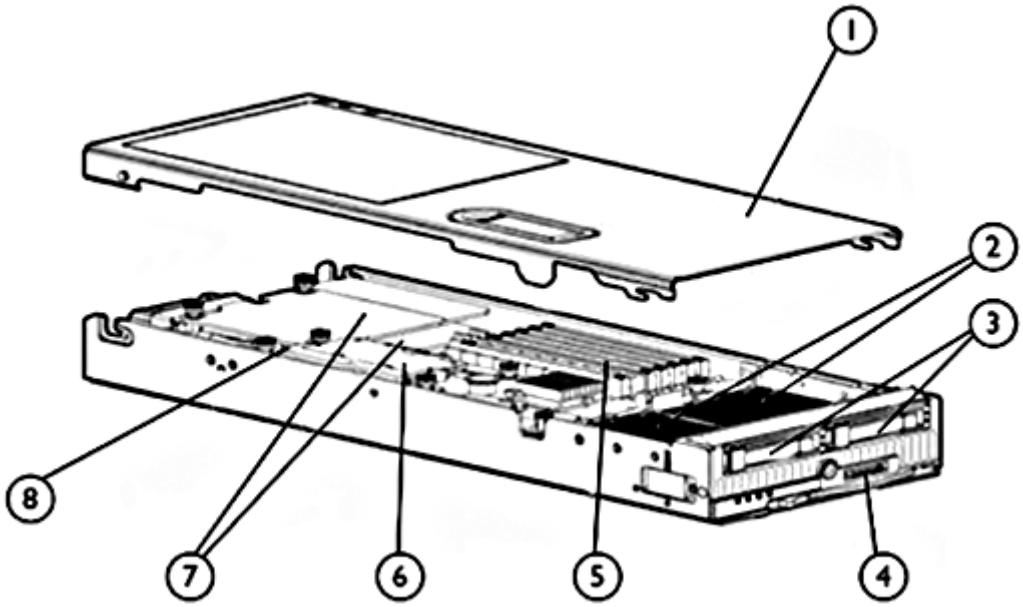
Overview

HP ProLiant xw460c Blade Workstation



1. Access Panel
2. Up to two Intel® Xeon® processors
3. Small form factor (SFF) drive bays.
4. Local I/O connector
5. Eight (8) PC2-5300, Fully Buffered DIMM (DDR2-667 MHz[1]) Memory Slots
6. HP Smart Array E200i Controller with 64 MB or 128 MB cache
7. Graphics mezzanine with NVIDIA Quadro FX 770M or FX 3600M graphics adapter
8. Internal USB Connector

What's New

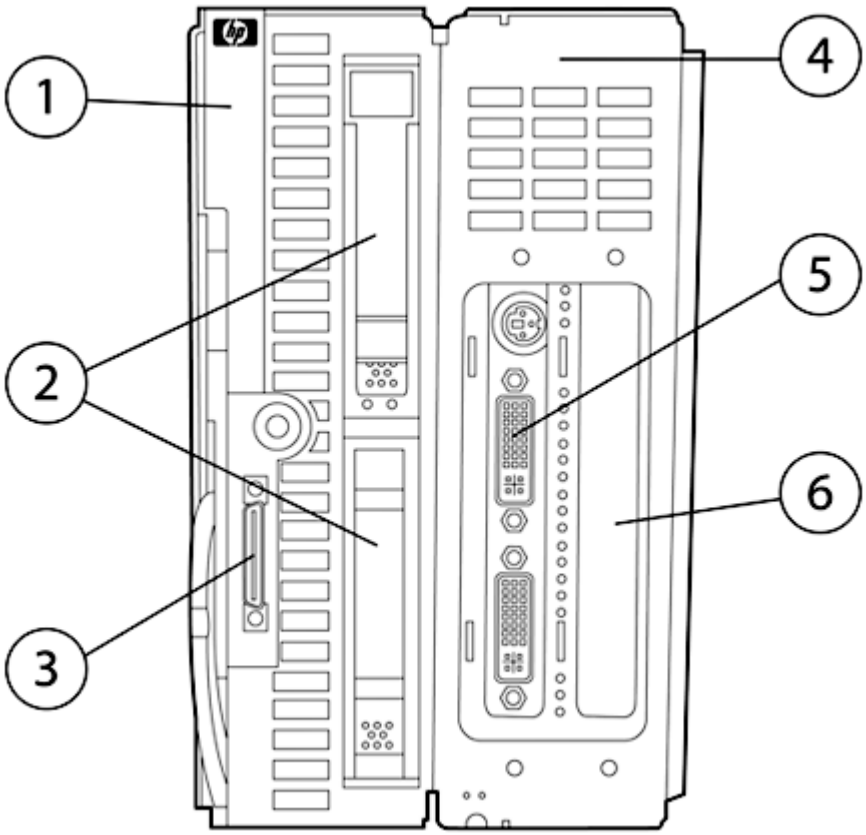
High-performance Intel® Xeon® 5400[2] series (quad-core[3]) 5200 series (dual-core[3]), and Low-Voltage (dual- and quad-core) processor options for the configurable model.

- Intel® Xeon® processor X5470 (3.33 GHz[4]) processor
- Intel® Xeon® processor L5430 (2.66 GHz) processor
- Intel® Xeon® processor X5270 (3.50 GHz) processor

[1] Dual Channel is only supported when the system is configured with DDR2 symmetric memory (i.e. 2 x 256).
[2] Intel's numbering is not a measurement of clock speed.
[3] Quad-Core and Dual-Core are new technologies designed to improve performance of multithreaded software products and hardware-aware multitasking operating systems and may require appropriate operating system software for full benefit; check with software provider to determine suitability; Not all customers or software applications will necessarily benefit from use of these technologies.
[4] GHz refers to internal clock speed of the processor. Other factors besides clock speed may impact system and application performance.

Overview

HP ProLiant xw460c Blade Workstation with HP Graphics Expansion Blade



1. HP ProLiant xw460c Blade Workstation base system
2. Small form factor (SFF) drive bays
3. Local I/O connector
4. HP Graphics Expansion Blade
5. Standard full-length PCI Express (x8); slot 1 (shown with graphics card)
6. Standard full-length PCI Express (x8); slot 2 (shown vacant)

Overview

At A Glance

This document covers the HP ProLiant xw460c Blade Workstation and HP ProLiant xw460c Blade Workstation with HP Graphics Expansion Blade module only. For more information on HP BladeSystems c-Class Enclosures and HP BladeSystem c-Class Interconnect Components, please see the following QuickSpecs:

HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html

HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html

and HP BladeSystem c-Class Interconnect Components QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html

The HP ProLiant xw460c Blade Workstation provides greater density of two-processor workstation blades without compromising power efficiency, performance, features and choices.

HP ProLiant xw460c Blade Workstation includes:

- Processor:
  - Up to two Intel® Xeon® 5400 series processors
  - Up to two Intel® Xeon® 5200 series processors
  - Supports Quad-Core 3.33, 3.16, 3.00, 2.83, 2.66, 2.50, or 2.00 GHz 1333 MHz FSB-2 x 6 MB Level 2 cache memory or Dual-Core with 3.50, 3.33 or 3.00GHz 1333 MHz FSB[5]-6 MB Level 2 cache memory
  - Intel® 5000P chipset supporting up to 1333 MHz Front Side Bus
- Memory:
  - Up to 64 GB of memory supported by (8) slots of PC2-5300 Fully Buffered DIMMs at 667 MHz. (32-bit OS limits physical memory space to 4 GB)
    NOTE: 64 GB of memory is supported with 80W processors and below. Not supported with 120W processors
  - Advanced ECC memory support
  - Supporting memory interleaving (2x1)
  - Low-power memory options available
- Storage Controller:
  - Integrated HP Smart Array E200i RAID controller with 64 MB or 128 MB battery-backed write-cache (BBWC). New pre-configured models come standard with 128 MB BBWC. Supports RAID 0, 1.
- Internal Drive Support:
  - Up to 2 small form factor (SFF) SAS hot-plug hard disk drives
- Network Controller:
  - Two (2) integrated single port NC373i Multifunction Gigabit Server Adapters
  - One (1) additional 10/100 NIC dedicated to iLO 2 Management
- Graphics Adapter:
  - Professional 2D & 3D graphics with hardware acceleration via graphics subsystem
  - NVIDIA Quadro FX 770M (Single or dual cards configuration capable)
    - § For professional 2D graphics & entry 3D graphics application

[5] Actual bus speed is less. Listed bus speed represents the equivalent effective throughput for data.

Overview

- 256 MB (GDDR3) memory[6]
- Supports up to four displays with dual card configuration
- Available only on HP xw460c without HP Graphics Expansion Blade module

- NVIDIA Quadro FX 3600M (Single card configuration)
  - For professional high-end 3D graphics application
  - 512 MB (GDDR3) memory
  - Supports up to two displays with single card
  - Available only on HP xw460c without HP Graphics Expansion Blade module
- NVIDIA Quadro FX 5600 (requires HP xw460c with HP Graphics Expansion Blade module)
  - For professional ultra high-end 3D graphics application
  - 1.5 GB (GDDR3) memory
  - Supports up to two displays with single card
  - Available only on HP xw460c with HP Graphics Expansion Blade module
- Blade Workstation Graphics Software Environment
  - Quad-display capable on remote client system with HP Blade Workstation Client
  - Displays may be oriented in landscape or portrait mode. May also be tiled in matrices.
  - Resolution: Max width 7680 pixels (@7680x1200), max height 7680 pixels (@1200x7680)
  - Specialized NVIDIA nView Desktop Manager for ease-of-use/management of multiple displays
  - Unified graphics driver for FX5600/FX3700/FX3600M/FX770M/FX1600M/FX560M with HP xw460c

- Internal USB Support:
  - One (1) internal USB 2.0 connector for security key devices and USB drive keys
- Form Factor:
  - HP ProLiant xw460c Blade Workstation plugs vertically into the BladeSystem c7000 enclosure with up to 16 blades or horizontally into c3000 enclosure with up to 8 blades
  - HP ProLiant xw460c Blade Workstation with expansion plugs vertically into the BladeSystem c7000 enclosure with up to 8 blades or horizontally into c3000 enclosure with up to 4 blades
- Management:
  - Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (includes virtual KVM and graphical remote console at no additional cost)
- Operating Systems:[7]
  - Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed,– (Preinstall available)
  - Genuine Microsoft® Windows® XP Professional x64 Edition with SP2 (Supported)
  - HP Installer Kit for Linux (provides essential Linux drivers and HP Remote Graphics Software for RedHat Enterprise Linux version 4.5 or 5 (64-bit)
- Enclosures:
  - HP ProLiant xw460c Blade Workstation plugs into the HP BladeSystem c7000 and c3000 enclosures.
  - The HP BladeSystem c7000 enclosure is 17.4in (442 mm) in height, 17.5in (445 mm) wide and holds up to 16 HP ProLiant xw460c blade workstations plugged vertically.
  - The HP BladeSystem c3000 enclosure is 10.4in (265 mm) in height, 19.1in (485 mm) wide and holds up to 8 HP ProLiant xw460c blade workstations plugged horizontally.

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[6] GDDR3 nomenclature is not a measurement of relative performance

[7] Certain Windows Vista product features require advanced or additional hardware. See www.microsoft.com/windowsvista/getready/hardwarereqs.mspx and www.microsoft.com/windowsvista/getready/capable.mspx for details. Windows Vista Upgrade Advisor can help you determine which features of Windows Vista will run on your computer. To download the tool, visit www.windowsvista.com/upgradeadvisor. Windows Vista Business disk also included for future upgrade if desired. To qualify for this downgrade an end user must be a business (including governmental or educational institutions) and is expected to order at least 25 customer systems with the same custom image.

Overview

- Blade workstations, Server blades, storage blades, interconnect modules, power supplies, fans, and redundant Onboard Administrator modules are all designed to fit into the c7000 & c3000 enclosures.

- Warranty:
  - Protected by HP Services and a worldwide network of resellers and service providers. 3-year parts, 3-year Labor and 3-year on-site limited global warranty. Certain restrictions and exclusions apply. Pre-Failure Notification on processors, memory, and SAS hard drives.

Standard Features (Blade Workstation)

Processor	Quad-Core Processor Option Kits Intel® Xeon® processor X5460 (3.16 GHz, 1333 MHz FSB)* Intel® Xeon® processor X5450 (3.00 GHz, 1333 MHz FSB)* Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB) Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB) Intel® Xeon® processor E5430 (2.66 GHz, 1333 MHz FSB) Intel® Xeon® processor E5420 (2.50 GHz, 1333 MHz FSB)* Intel® Xeon® processor L5420 (2.50 GHz, 1333 MHz FSB)* Intel® Xeon® processor E5405 (2.00 GHz, 1333 MHz FSB) Dual-Core Processor Option Kits Intel® Xeon® processor X5260 (3.33 GHz, 1333 MHz FSB) Intel® Xeon® processor L5240 (3.33 GHz, 1333 MHz FSB)* NOTE: Intel® Xeon® 5400 & Intel® Xeon® 5200 Series processors are 64-bit and support fully-buffered DIMM technology. * Offered through configurable blade model only.	
Upgradeability	Upgradeable to 2 processors	
Cache Memory	2 x 6 MB Level 2 cache memory (Intel® Xeon® 5400 Series) 1 x 6 MB Level 2 cache memory (Intel® Xeon® 5200 Series)	
Chipset	Intel® 5000P Chipset	
Memory	Type	PC2-5300 Fully Buffered DIMMs at 667 MHz
	Standard	2 GB (2 x 1 GB)
	Maximum	64 GB (8 x 8 GB) NOTE: Memory must be installed in pairs. 32-bit OS limits addressable physical memory space to 4GB.
Network Adapter	(2) integrated single port NC373i Multifunction Gigabit Server Adapters with TCP/IP Offload Engine One (1) additional 10/100 NIC dedicated to iLO 2 Management	
Graphics Adapter (mezzanine card)	NVIDIA Quadro FX 770M graphics (via graphics mezzanine card) NOTE: Workstation class performance for professional 2D graphics and entry 3D graphics	
	Memory size / type	256 MB/DDR3
	Memory I/F	128-bit
	Color	128-bit
	Number of displays	Up to two displays per card, total of four with dual card configuration

Standard Features (Blade Workstation)

	Graphics driver	Single driver, compatible with FX5600, FX3700, FX3600M, FX1600M, FX770M, FX560M	
	NVIDIA Quadro FX 3600M graphics (via graphics mezzanine card) NOTE: Workstation class high-performance for professional 3D graphics		
	Memory size / type	512 MB/DDR3	
	Memory I/F	256-bit	
	Color	128-bit	
	Number of displays	Up to two displays. Single card configuration only.	
	Graphics driver	Single driver, compatible with FX5600, FX3700, FX3600M, FX1600M, FX770M, FX560M	
Integrated Manageability	Integrated Lights-Out 2 (iLO 2) Standard Blade Edition (integrated on motherboard)		
Storage Controller	HP Smart Array E200i Controller	64 MB memory or 128 MB with Battery-backed write cache module. Supports RAID 0, 1. 64 MB memory module can be upgraded with 128 MB module. Newer models come standard with 128 MB BBWC.	
Maximum Internal Storage[8]	Hot Plug Serial Attach SCSI (SAS)	292 GB SAS	2 x 146 GB Serial SCSI
		144 GB SAS	2 x 72 GB Serial SCSI
Graphics (on-board)	Integrated ATI RN-50 1280 x 1024 (32 MB DDR1 memory) NOTE: For system administrative use only		

[8] 1 GB = 1 billion bytes. Actual formatted capacity is less.

Standard Features

Unified Foundation Management and Essentials Software Plug-ins	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage workstations, servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	ProLiant Essentials Rapid Deployment Pack	Rapid Deployment Pack (RDP) extends HP Systems Insight Manager with a complete deployment solution for HP ProLiant Blade Workstations. RDP provides a central location to configure workstation hardware and deploy Windows. License for RDP must be purchased separately.
	Insight Management Agents	The Insight Management Agents should be installed on all HP workstations, and servers to present system instrumentation, health and configuration information into HP Systems Insight Manager and the HP System Management Homepage. The HP System Management Homepage aggregates systems data from Insight Management Agents and other HP management tools, providing a consolidated browser-based interface for managing individual blades.
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	Software and updates	The latest software, drivers, and firmware fully optimized and tested for your ProLiant blades and options, available through Soft Packs downloaded from Software and Drivers download pages website at http://www.hp.com/go/support.

Optional ProLiant Essentials Value Packs	Optional software offerings that selectively extend the functionality of an Adaptive Infrastructure to address specific business problems and needs: Integrated Lights-Out Select Pack – upgrades the Integrated Lights-Out processor with scripted and command line virtual media, Power Regulator reporting and enterprise security NOTE: Available features may differ with server blades and workstation blades. NOTE: Flexible and volume quantity license kits are available for ProLiant Essentials Value Packs. Refer to http://www.hp.com/servers/proliantessentials or the various ProLiant Essentials Value Pack product QuickSpecs for more information.

OS Support	Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed (Preinstall available) Genuine Microsoft® Windows® XP Professional x64 Edition with SP2 (Supported) NOTE: Operating System license and software must be acquired separately from Microsoft. HP Installer Kit for Linux; Provides essential Linux drivers and HP Remote Graphics Software for Linux. Drivers for RedHat Enterprise Linux version 4.5 or 5.

Standard Features

	NOTE: This kit does not include the RedHat Enterprise Linux operating software. Must be acquired separately. NOTE: HP Remote Graphics Software (RGS) for Linux is licensed software. To receive future software upgrades, a separate Software Assurance product is required.
Remote Access	HP Remote Graphics Software with additional feature sets for Blade Workstation*. Optional software maintenance subscription products are available. NOTE: Description applies to Windows XP version only. NOTE: HP Remote Graphics Software (RGS) is licensed software. To receive future software upgrades, a separate Software Assurance product is required. NOTE: For more information on HP Remote Graphics Software, please find HP Remote Graphics in: http://www.hp.com/workstations/
Intelligent Manageability	Integrated Lights-Out 2 Standard Blade Edition (iLO 2) Virtual KVM(Text and Graphical modes) Virtual Media (CD ROM ,floppy and USB flash drive) Virtual Power Button Control Integrated Remote Console Embedded system health Blade power consumption reading Browser, command line and scripted access Dedicated LAN Connectivity Automatic IP Configuration via DHCP/DNS/WINS Industry Standard RC4, 128-bit Secure Sockets Layer (SSL) and Secure Shell (SSH) Security IML and iLO Event Logging Support for 12 user accounts with customizable access Upgrade to HP ProLiant Essentials Integrated Lights-Out Select Pack NOTE: Advanced features such as Graphical Remote Console and browser accessible Virtual Floppy/CD-ROM are included with the BL c-Class blade workstation.
Availability	Redundant ROM on each blade workstation Advanced ECC Memory – can correct a multi-bit error (up to 4 bits) that occurs within one memory chip
Security	One (1) internal USB 2.0 connector for security key devices and USB drive keys Power-on password Administrator's password Integrated Lights-Out 2 has 12 customizable user accounts and SSL encryption Integrated Lights-Out 2 can be disabled via a Global Setting
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP workstations, servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading,

Standard Features

asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of workstations, servers and storage: HP ProLiant Blade Workstations, HP ProLiant Server Blades, HP Integrity, HP BladeSystem, HP 9000 servers as well as the MSA1000, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services on your specific server model please contact your sales representative or go to http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eCo-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.

Service and Support

This product is covered by a global limited warranty and supported by HP Services and a worldwide network of resellers and service providers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Additional support may be covered under the warranty or available for an additional fee. Enhancements to warranty services are available through HP Care Pack services or customized service agreements.

NOTE: Workstation Warranty includes 3-year Parts, 3-year Labor, 3-year on-site support.
NOTE: Blade Enclosure Limited Warranty includes 3-year Parts, 3 year Labor, 3-year on-site support.
NOTE: Blade Interconnect Limited Warranty includes 1-year Parts, 1 year Labor, 1-year on-site support.

The HP Care Pack service part numbers below for ProLiant BL c-Class blade workstations, cover the blade workstation and all HP branded hardware options qualified for the workstation, purchased at the same time or afterwards, internal to the workstation.

HP Care Pack services for the c7000 and c3000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module and GbE2c Ethernet Blade Switch, Virtual Connect and Cisco Catalyst 3020 Blade Switch.

HP services provide continuous care and support expertise with committed response designed to meet your IT and business needs.

To fully capitalizing on your HP BladeSystem workstations' capabilities requires a service partner who thoroughly understands your workstation technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions provides a range of support services designed to meet the varying needs of business. Whether an SMB or large global corporation HP has a HP BladeSystem workstation support offer to help you speedily deploy and maximize system uptime.

Enhanced Care – Minimum recommended service support offer designed to ensure customers

have access to expert assistance, whenever they need it.

- 4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years.

Continuance Care – Recommended service delivering cost-effective support options designed to extend HP Services committed response and guaranteed fix times, designed to speed problem identification and resolution.

- 4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years.

Total Care – Highest HP Support service level recommend to help increase IT performance and availability with comprehensive, integrated hardware and software services

- Support Plus 24 – Onsite HW support 24x7, 4hr response and Microsoft O/S SW Tech support offsite, onsite at HP's discretion, 24x7 2hr response time incl. HP holidays.

Deployment Services – HP Installation and Start Up services designed to take time, risk, and worry out of the deployment of HP BladeSystem workstations - and free customers IT support staff to focus on what they do best, their business.

- Installation & Start-Up service for HP BladeSystem Infrastructure plus HP BladeSystem Enhanced Network Installation and Start-UP as per the Customer Description and/or Data Sheet. To be delivered on a scheduled basis 8am-5pm, M-F, excl. HP holidays

NOTE: Some services cover server blades only. Check with your HP Services representative for details.

For a complete listing of service offerings and information visit:
http://www.hp.com/services/bladesystemservices
http://www.hp.com/go/proliant/carepack

Pre-configured Models

FX 770M graphics preconfigured models

HP ProLiant xw460c E5450 QC 2G (1P) 490862-B21 HP ProLiant xw460c E5440 QC 2G (1P) 490863-B21 HP ProLiant xw460c E5430 QC 2G (2P) 490864-B21 HP ProLiant xw460c E5430 QC 2G (1P) 490865-B21 HP ProLiant xw460c E5405 QC 2G (1P) 490866-B21 HP ProLiant xw460c X5260 DC 2G (1P) 490861-B21 HP ProLiant xw460c E5430 QC 2G (1P) 490865-291 (Japanese) HP ProLiant xw460c E5405 QC 2G (1P) 490866-291 (Japanese)	Processor(s) One of the following depending on model	(1) Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB) (1 or 2) Intel® Xeon® processor E5430(2.66 GHz,1333 MHz FSB) (1) Intel® Xeon® processor E5405 (2.00 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor X5260 (3.33 GHz, 1333 MHz FSB)
	Cache Memory	2 x 6 MB Level 2 cache memory (5400 series processors) 1 x 6 MB Level 2 cache memory (5200 series processors)
	Memory	2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667
	Graphics Adapter	(1 or 2) NVIDIA Quadro FX 770M with 256MB memory
	Network Adapter	(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management
	Storage Controller	HP Smart Array E200i Controller with 64 MB cache or 128 MB with battery-backed write cache
	Hard Drives	(1) 72 GB SFF 10k rpm SAS disk drive
	Internal Storage Bay	(2) Hot-plug drive bays (Total 292 GB maximum with SAS disk drives)
	Optical Drive	None
	Software	HP Remote Graphics Software (Version 5) – Workstation Edition license-to-use
	Operating System	Depending on model, one of following is preinstalled: Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed, English or Japanese localization
	Form Factor	Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure

FX 3600M graphics preconfigured models

HP ProLiant xw460c E5450 Quad-Core 2G (1P) 72GB 15k	Processor(s) One of the following depending on model	(1) Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor X5260 (3.33 GHz, 1333 MHz FSB)

Pre-configured Models

2G (1P) 72GB 15k SAS HDD 488223-B21	Cache Memory	2 x 6 MB Level 2 cache memory (5400 series processors) 1 x 6 MB Level 2 cache memory (5200 series processors)
	Memory	2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667
	Graphics Adapter	(1) NVIDIA Quadro FX 3600M with 512 MB memory
	Network Adapter	(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management
HP ProLiant xw460c E5430 Quad-Core 2G (1P) 72GB 10k SAS HDD 488224-B21	Storage Controller	HP Smart Array E200i Controller with 64 MB cache or 128 MB with battery-backed write cache
	Hard Drives One of the following depending on model	(1) 72 GB SFF 15k rpm SAS disk drive (1) 72 GB SFF 10k rpm SAS disk drive
HP ProLiant xw460c X5260 Dual-Core 2G (1P) 72GB 15k SAS HDD 488222-B21	Internal Storage Bay	(2) Hot-plug drive bays (Total 292 GB maximum with SAS disk drives)
	Optical Drive	None
	Software	HP Remote Graphics Software (Version 5) – Workstation Edition license-to-use
	Operating System	Depending on model, one of following is preinstalled:
HP ProLiant xw460c X5260 Dual-Core 2G (1P) 72GB 15k SAS HDD 488222-291 (Japanese)		Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed, English or Japanese localization
	Form Factor	Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure

HP xw460c with expansion preconfigured model

HP ProLiant xw460c E5450 Quad-Core 4G (1P) 72GB 15k SAS HDD 496944-B21	Processor(s)	(1) Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB)
	Cache Memory	2 x 6 MB Level 2 cache memory
	Memory	4 GB (2 x 2 GB) PC2-5300, FBD DDR2-667
	Graphics Adapter	No graphics card preconfigured
	I/O mezzanine slot	Both slot 1 & 2 of I/O mezzanine slots occupied by system use and not available
	PCIe expansion slot*	(2) Standard, full-length PCI-Express expansion slot (PCIe x8)
	Network Adapter	(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management
	Storage Controller	HP Smart Array E200i Controller with 64MB cache or 128MB with battery-backed write cache

Pre-configured Models

Hard Drives	(1) 72 GB SFF 15k rpm SAS disk drive
Internal Storage Bay	(2) Hot-plug drive bays (Total 292GB maximum with SAS disk drives)
Optical Drive	None
Software	HP Remote Graphics Software (Version 5) – Workstation Edition license-to-use
Operating System	Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed, English
Form Factor	Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure

NOTE *: Only NVIDIA Quadro FX 5600 or single FX 3700 graphics card supported for use in PCIe slots.

FX 560M graphics preconfigured models

HP ProLiant xw460c E5450 QC 2G (1P) 469062-B21	Processor(s) One of the following depending on model	(1) Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB) (1 or 2) Intel® Xeon® processor E5430(2.66 GHz,1333 MHz FSB) (1) Intel® Xeon® processor E5405 (2.00 GHz, 1333 MHz FSB) (1) Intel® Xeon® processor X5260 (3.33 GHz, 1333 MHz FSB)
HP ProLiant xw460c E5440 QC 2G (1P) 469063-B21		
HP ProLiant xw460c E5430 QC 2G (2P) 469064-B21		
HP ProLiant xw460c E5430 QC 2G (1P) 469065-B21	Cache Memory	2 x 6 MB Level 2 cache memory (5400 series processors) 1 x 6 MB Level 2 cache memory (5200 series processors)
HP ProLiant xw460c E5405 QC 2G (1P) 469066-B21	Memory	2 GB (2 x 1 GB) PC2-5300, FBD DDR2-667
HP ProLiant xw460c X5260 DC 2G (1P) 469061-B21	Graphics Adapter	(1) NVIDIA Quadro FX 560M with 256 MB memory
HP ProLiant xw460c E5430 QC 2G (1P) 469065-291 (Japanese)	Network Adapter	(2) Embedded single port NC373i Multifunction Gigabit NICs plus (1) additional 10/100 NIC dedicated to iLO 2 Management
	Storage Controller	HP Smart Array E200i Controller with 64 MB cache or 128 MB with battery-backed write cache
	Hard Drives	(1) 72 GB SFF 10k rpm SAS disk drive
	Internal Storage Bay	(2) Hot-plug drive bays (Total 292 GB maximum with SAS disk drives)
	Optical Drive	None
	Software	HP Remote Graphics Software (Version 5) – Workstation Edition license-to-use
	Operating System	Depending on model, one of following is preinstalled:

Pre-configured Models

HP ProLiant xw460c E5405 QC 2G (1P) 469066-291 (Japanese)	Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed, English or Japanese localization
Form Factor	Up to 16 half-height blades supported in HP BladeSystem c7000 Enclosure Up to 8 half-height blades supported in HP BladeSystem c3000 Enclosure

Configuration Information - Factory Integrated Models (North America region only)

NOTE: For Configure to Order requirements within EMEA region, please consult local Sales Contact.
NOTE: HP does not allow factory integration of options into standard models listed previously as "Pre-configured Models". Configure-To-Order workstation blade must start with a CTO Blade.
NOTE: This product offering does not support HP Factory Express Server Configuration Level 1.
NOTE: FIO indicates that this option is a Factory Installable Option, only available at time of CTO Blade purchase.

Step 1: Base Workstation Blade Configuration (Select a configurable Blade)

Configurable Model	Choose from one of the following base configurable models.	
	HP ProLiant xw460c Blade Workstation configurable (CTO) model*	442824-B21
	HP ProLiant xw460c Blade Workstation with expansion configurable (CTO) model**	490881-B21
	NOTE *: Single-width, half-height bade with two mezzanine card slots available. NOTE **: Double-width half-height blade with two, full-length, PCIe x8 slots. Both mezzanine card slots on base blade not available.	
	Configurable Model ships with:	
	(2) Integrated single port NC373i Multifunction Gigabit NICs (1) additional 10/100 NIC dedicated to iLO 2 Management	
	Integrated HP Smart Array E200i RAID controller supporting RAID 0/1 NOTE: Controller cache module selection is required. Select either the standard 64 MB module or the optional 128 MB module in step 2 below.	
	Two small form factor (SFF) SAS hard drive bays	
	Integrated Lights-Out 2 Standard Blade Edition	
	HP Remote Graphics Software with additional feature sets for Blade Workstation	

Step 2: Choose Required Options (one of the following from each list unless otherwise noted):

Processors	For single processor configuration choose:	
	Quad-core Process Option Kits (FIO only)	
	Intel® Xeon® processor X5470 (3.33 GHz, 1333 MHz FSB, 120W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 504586-L21 and one 504586-B21	504586-L21
	Intel® Xeon® processor X5460 (3.16 GHz, 1333 MHz FSB, 120W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 463613-L21 and one 463613-B21	463613-L21
	Intel® Xeon® processor X5450 (3.00 GHz, 1333 MHz FSB, 120W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one463614-L21 and one 463614-B21	463614-L21
	Intel® Xeon® processor E5450 (3.00 GHz, 1333 MHz FSB, 80W) Option Kit,	462683-L21

Configuration Information - Factory Integrated Models (North America region only)

	FIO Base NOTE: If 2 processors are desired, select one 462683-L21 and one 462683-B21	
	Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 462685-L21 and one 462685-B21	462685-L21
	Intel® Xeon® processor E5430 (2.66 GHz, 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 462686-L21 and one 462686-B21	462686-L21
	Intel® Xeon® LV processor L5430 (2.66 GHz, 1333 MHz FSB, 50W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 504587-L21 and one 504587-B21	504587-L21
	Intel® Xeon® processor E5420 (2.50 GHz, 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 462687-L21 and one 462687-B21	462687-L21
	Intel® Xeon® LV processor L5420 (2.50 GHz, 1333 MHz FSB, 50W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 490871-L21 and one 490871-B21	490871-L21
	Intel® Xeon® processor E5405 (2.00 GHz, 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 462688-L21 and one 462688-B21	462688-L21
	Dual-core Process Option Kits (FIO only)	
	Intel® Xeon® processor X5270 (3.50 GHz 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 504585-L21 and one 504585-B21.	504585-L21
	Intel® Xeon® processor X5260 (3.33 GHz 1333 MHz FSB, 80W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 462689-L21 and one 462689-B21.	462689-L21
	Intel® Xeon® LV processor L5240 (3.00 GHz 1333 MHz FSB, 40W) Option Kit, FIO Base NOTE: If 2 processors are desired, select one 490872-L21 and one 490872-B21.	490872-L21
	NOTE: Use “Options” part numbers for later addition of processors	
Memory	1 GB FBD PC2-5300 2 x 512 MB Kit – FIO only	442821-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit – FIO only	442822-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit – FIO only	442823-B21

Configuration Information - Factory Integrated Models (North America region only)

	8 GB FBD PC2-5300 2 x 4 GB Kit – FIO only	452265-B21
	16 GB FBD PC2-5300 2 x 8GB Kit* – FIO only	467928-B21
	2 GB Low-power FBD PC2-5300 2 x 1 GB Kit – FIO only	467926-B21
	4 GB Low-power FBD PC2-5300 2 x 2 GB Kit – FIO only	467927-B21
	8 GB Low-power FBD PC2-5300 2 x 4 GB Kit – FIO only	468464-B21
	NOTE: Must be installed in pairs. NOTE: Use "Options" part numbers for later addition of memory modules NOTE *: 64GB of Memory is supported with 80W processors and below. Not supported with 120W processors	
Hard disk	HP 146 GB 3G SAS 10K SFF DP HDD – FIO only	490876-B21
	HP 72 GB 3G SAS 10K SFF DP HDD – FIO only	490877-B21
	HP 72GB 3G SAS 15K SFF DP HDD – FIO only	490878-B21
	HP 146 GB 3G SAS 10K SFF SP HDD – FIO only	442819-B21
	HP 72 GB 3G SAS 10K SFF SP HDD – FIO only	442820-B21
	HP 72GB 3G SAS 15K SFF SP HDD – FIO only	431935-B21
	NOTE: At least one disk required for OS installation. NOTE: Use "Options" part numbers for later addition of hard disk	
Controller Cache	64 MB Cache – FIO Only	442844-B21
	128 MB Battery-Backed Cache Enabler – FIO Only	452266-B21
	NOTE: Supports the HP Smart Array E200i Controller	
Graphics Adapter	Choose from following graphics mezzanine cards for use with the single-width HP xw460c (442824-B21) model	
	NVIDIA Quadro FX 770M graphics kit, 1st card – FIO only	490857-B21
	NVIDIA Quadro FX 770M graphics kit, 2nd card for quad-display support (with factory integration option); Requires FX770M 1st card NVIDIA Quadro FX 770M graphics kit, 2nd card for quad-display support*	490858-B21 #0D1490858-B21
	NVIDIA Quadro FX 3600M graphics kit (with factory integration option) ; up to two displays support NVIDIA Quadro FX 3600M graphics kit (up to two displays support)*	488237-B21 #0D1488237-B21
	NVIDIA Quadro FX 560M graphics kit, 1st card – FIO only	442826-B21
	NVIDIA Quadro FX 560M graphics kit, 2nd card for quad-display support (with factory integration option); Requires FX 560M 1st card	469067-B21 with #0D1
	NVIDIA Quadro FX1600M graphics kit – FIO only	452262-B21
	(Optional) choose following standard PCIe graphics card for use with the double-width HP xw460c (490881-B21) model	
	NVIDIA Quadro FX 5600 graphics kit – FIO only	496094-B21
Operating System	Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP	442845-B22

Configuration Information - Factory Integrated Models (North America region only)

Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed (English) – FIO only	
Genuine Windows Vista® Business 32-bit with downgrade to Windows® XP Professional 32-bit SP2 Blade PC edition with 1 RDL (Remote Desktop License) custom installed (Japanese) – FIO only	442845-291
HP Installer Kit for Linux – FIO Only	452257-B21

Step 3: Choose Additional Options for Factory Integration

NOTE: For additional options, including blade enclosures interconnect options and power subsystem options; please see the following QuickSpecs:

HP BladeSystem c3000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12790_div/12790_div.html

HP BladeSystem c7000 Enclosure QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12810_div/12810_div.html

and HP BladeSystem c-Class Interconnect Components QuickSpecs:
http://h18000.www1.hp.com/products/quickspecs/12524_div/12524_div.html.

Options (non-factory integrated)

ProLiant Essentials Value Pack Software	ProLiant Essentials Integrated Lights-Out Select Pack	
	ProLiant Essentials Integrated Lights-Out Select Pack, 1 server License	452158-B21
	ProLiant Essentials Integrated Lights-Out Select Pack 8-server License	452161-B21
	Featuring: sophisticated remote control and security features for HP BladeSystem workstations in text console environments. NOTE: For additional ProLiant Essentials Integrated Lights-Out Packs please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_div/12362_div.html	
Processors	Quad-Core Process Option Kits	
	Intel® Xeon® processor X5470 (3.33 GHz, 1333 MHz FSB, 120W)	492308-B21
	Intel® Xeon® processor X5460 (3.16 GHz, 1333 MHz FSB, 120W)	459973-B21
	Intel® Xeon® processor X5450 (3.00 GHz 1333 MHz FSB, 120W)	463056-B21
	Intel® Xeon® processor E5450 (3.00 GHz 1333 MHz FSB, 80W)	459489-B21
	Intel® Xeon® processor E5440 (2.83 GHz, 1333 MHz FSB, 80W)	459490-B21
	Intel® Xeon® processor E5430 (2.66 GHz, 1333 MHz FSB, 80W)	459491-B21
	Intel® Xeon® LV processor L5430 (2.66 GHz, 1333 MHz FSB, 50W)	493764-B21
	Intel® Xeon® processor E5420 (2.50 GHz, 1333 MHz FSB, 80W)	459492-B21
	Intel® Xeon® LV processor L5420 (2.50 GHz, 1333 MHz FSB, 50W)	462876-B21
	Intel® Xeon® processor E5405 (2.00 GHz, 1333 MHz FSB, 80W)	459494-B21
	Dual-Core Process Option Kits	
	Intel® Xeon® processor X5270 (3.50 GHz, 1333 MHz FSB, 80W) Option Kit	492309-B21
	Intel® Xeon® processor X5260 (3.33 GHz, 1333 MHz FSB, 80W) Option Kit	461623-B21
	Intel® Xeon® LV processor L5240 (3.00 GHz, 1333 MHz FSB, 40W) Option Kit	461624-B21
Memory	1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
	2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
	4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
	8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
	16 GB FBD PC2-5300 2 x 8 GB Kit*	413015-B21
	2 GB Low-power FBD PC2-5300 2 x 1 GB Kit	461826-B21
	4 GB Low-power FBD PC2-5300 2 x 2 GB Kit	461828-B21
	8 GB Low-power FBD PC2-5300 2 x 4 GB Kit	466440-B21
	NOTE: Must be installed in pairs. NOTE *: 64GB of Memory is supported with 80W processors and below. Not supported with 120W processors	
Hard Drives	Serial Attached SCSI (SAS) SFF Hot Plug	
	HP 146 GB 3G SAS 10K SFF DP HDD	418367-B21
	HP 72 GB 3G SAS 10K SFF DP HDD	384842-B21

Options (non-factory integrated)

	HP 72 GB 3G SAS 15K SFF DP HDD	418371-B21
	HP 146 GB 3G SAS 10K SFF SP HDD	431958-B21
	HP 72 GB 3G SAS 10K SFF SP HDD	375861-B21
	HP 72 GB 3G SAS 15K SFF SP HDD	431935-B21
	NOTE: SAS drives have a 3 year warranty. NOTE: Please see the SAS Hard Drive QuickSpecs for Technical Specifications such as capacity, height, width, interface, transfer rate, seek time, physical configuration, and operating temperature: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html	
Controller Cache	128 MB Battery-Backed Cache Enabler	351580-B21
	NOTE: Supports the HP Smart Array E200i Controller.	
Graphics Adapter	NVIDIA Quadro FX 770M graphics kit, 2nd card for quad-display support*	490858-B21
	NVIDIA Quadro FX 3600M graphics kit (up to two displays support)*	488237-B21
	NVIDIA Quadro FX 5600 1.5 GB standard PCIe graphics kit**	GU095AA
	NVIDIA Quadro FX 3700 512 MB standard PCIe graphics kit**	KD506AA
	NVIDIA Quadro FX 560M graphics kit, 2nd card for quad-display support*	469067-B21
	NOTE *: For use with HP xw460c without HP Graphics Expansion Blade module. 2nd graphics card option requires 1st card to be installed NOTE **: For use with xw460c with HP Graphics Expansion Blade module only	
Fiber Channel Mezzanine Options	Emulex LPe1105 FC Dual Channel 4Gb, PCI-E-to-Fibre Channel Host Bus Adapter	403621-B21
	QLogic QMH2462 4Gb FC HBA for HP c-Class BladeSystem	403619-B21
	NOTE: Boot from SAN functionality not supported. Factory integration option not available with HP xw460c Blade Workstation.	
HP StorageWorks SB40c Storage Blade	HP StorageWorks SB40c Storage Blade	411243-B21
	NOTE: Not supported with use with xw460c with expansion models. NOTE: Please see the SB40c Storage Blade QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12587_div/12587_div.html	
USB Options	HP USB 2-Button Optical Scroll Mouse (Carbonite/Silver)	DC172B
	HP 1GB Drive Key II – USB 2.0 Flash Drive	AG382AA
	2004 Standard Keyboard USB	DT528A#xxx
HP Remote Graphics Software	HP Remote Graphics Software version 5 – Workstation Edition 3-year Software Assurance	GN036AA

Options (non-factory integrated)

Service and Support Offerings (HP Care Pack Services)	NOTE: The HP Care Pack service part numbers below for ProLiant c-Class blade workstations, cover the workstation blade and all HP branded hardware options qualified for the workstation, purchased at the same time or afterwards, internal to the workstation.	
	Hardware Services On-site Service (Blade Workstation Hardware)	
	4-Hour On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	U4873E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	U4875E
	4-Hour On-site Service, 5-Day x 9-Hour Coverage, 4 Years, Electronic (EMEA only)	U7946E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 4 Years, Electronic (EMEA only)	U7950E
	4-Hour On-site Service, 5-Day x 9-Hour Coverage, 5 Years, Electronic (EMEA only)	U7948E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 5 Years, Electronic (EMEA only)	U7952E
	NOTE: HP Care Pack services for the c7000 Enclosure cover the enclosure, power supplies and fans. HP qualified rack options are covered by these services when installed within the same rack. HP Supported Ethernet devices covered include the Ethernet Pass-Through Module, Fibre Channel Pass-Through Module, Cisco Catalyst 3020 Blade Switch and GbE2c Ethernet Blade Switch.	
	Hardware Services On-site Service	
	Next Business Day On-site Service, 5-Day x 9-Hour Coverage, 3 Years, Electronic	UE477E
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UE478E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE479E
	6-Hour Call to Repair, On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UE480E
	Hardware Installation, Electronic	U5988E
	Software Installation & Start-up Services	
	Provides for the Installation and Start-up of ProLiant Essentials Rapid Deployment Pack, Electronic	U5683E
	NOTE: Provides installation on a Customer supplied server designated as a Deployment Server. Includes the deployment of a single server. This new server will be deployed using either one of the pre-configured scripts or an image. In addition, the service will provide for the capture and storage of the configuration of the newly deployed server and orientation on product usage. To be delivered during standard office ours, standard office days.	
	Provides for the Installation and Start-up of Rapid Deployment Pack Implementation of Rapid Deployment Pack (Basic) (Electronic)	UA042E
	Provides for the Installation and Start-up of System Insight Manager (Electronic)	UA041E
	Provides for the Installation and Start-up of System Insight Manager Agents (Electronic)	UA040E
	NOTE: For more information, customer/resellers can contact	

Options (non-factory integrated)

http://www.hp.com/hps/carepack/services/

Software Operating Environment Care Packs	
3-year, 9x5 Blade Workstation Software Tech Support (2hr response)	UC271E
3-year, 24x7 Blade Workstation Software Tech Support (2hr response); North Americas region only	UF584E
1-year, 9x5 3-incident Blade Workstation Software Tech Support	UE354E

Memory

DIMM installation guidelines:

1. All DIMMs must be PC2-5300 Fully Buffered DIMMs at 667 MHz.
2. Both DIMM slots in a memory bank must be populated.
3. Banks must be populated in sequential alphabetic order, starting with bank A.
4. Both DIMMs in a memory bank must be identical. Install identical DIMMs as pairs only, starting with DIMM socket 1, bank A.
5. Multiple advanced memory protection (AMP) modes are supported, based on FBDIMM population and RBSU selection. The blade workstation defaults to Advanced ECC

HP ProLiant xw460c Blade Workstation (1P and 2P Models)

Standard Memory

2048 MB (2 x 1024 MB) of PC2-5300, FBD DDR2-667 ECC DIMMs

Standard Memory Plus Optional Memory

Up to 51200 MB of PC2-5300, FBD DDR2-667 ECC DIMMs. Memory is available with the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Standard Memory Replaced with Optional Memory

Up to 65536-MB of PC2-5300, FBD DDR2 FBD-667 ECC DIMMs. Memory is available with removal of standard and the installation of optional PC2-5300, FBD DDR2-667 DIMM memory expansion kits.

Memory		Slot							
		1A	2C	3A	4C	5B	6D	7B	8D
Standard	2048 MB	1024 MB	Empty	1024 MB	Empty	Empty	Empty	Empty	Empty
Optional	51200 MB	1024 MB	8192 MB	1024 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB
Maximum	65536 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB	8192 MB

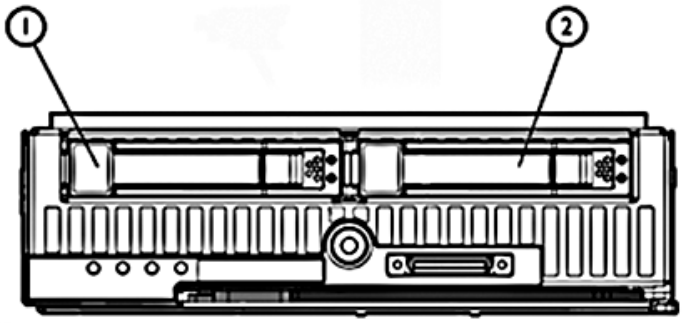
NOTE: Maximum of 65536 MB can be achieved using 8192 MB DIMM. 32-bit OS limits addressable physical memory space to 4096 MB.

NOTE: 65536MB (64GB) of Memory is supported with 80W processors and below. Not supported with 120W processors

Following are memory options available from HP:

1 GB FBD PC2-5300 2 x 512 MB Kit	397409-B21
2 GB FBD PC2-5300 2 x 1 GB Kit	397411-B21
4 GB FBD PC2-5300 2 x 2 GB Kit	397413-B21
8 GB FBD PC2-5300 2 x 4 GB Kit	397415-B21
16 GB FBD PC2-5300 2 x 8 GB Kit	413015-B21
2 GB FBD PC2-5300 2 x 1 GB Low-Power Kit	461826-B21
4 GB FBD PC2-5300 2 x 2 GB Low-Power Kit	461828-B21
8 GB FBD PC2-5300 2 x 4 GB Low-Power Kit	466440-B21

Storage



1-2	2 x SFF SAS Hard Drives

Hard Drives

SAS Hard Drive

	Quantity Supported	Position Supported	Controller
72 GB 10,000 rpm SAS	2	1-2	HP Smart Array E200i Controller
146 GB 10,000 rpm SAS			
72 GB 15,000 rpm SAS			

Following are storage options available from HP for the HP xw460c Blade Workstation:

HP 146 GB 3G SAS 10K SFF DP HDD	418367-B21
HP 72 GB 3G SAS 10K SFF DP HDD	384842-B21
HP 72 GB 3G SAS 15K SFF DP HDD	418371-B21
HP 146 GB 3G SAS 10K SFF SP HDD	431958-B21
HP 72 GB 3G SAS 10K SFF SP HDD	375861-B21
HP 72 GB 3G SAS 15K SFF Single-Port HDD	431935-B21

Power Specifications

To review maximum system power ratings for facilities planning purposes use the Active Answers Blade Power Sizer which is available via the online tool located at URL: http://h71019.www7.hp.com/ActiveAnswers/cache/347628-0-0-0-121.html

Technical Specifications

HP ProLiant xw460c Blade Workstation			Without HP Graphics Expansion Blade module	With HP Graphics Expansion Blade module
	Dimensions	Height	2.207 in (5.61 cm)	4.414 in (11.22 cm)
		Depth	20.058 in (50.95 cm)	
		Width	7.154 in (18.17cm)	
	Weight	Maximum	14.20 lb (6.44kg)	19.49 lb (8.84kg)
	Temperature Range*	Operating	50° to 95°F (10° to 35°C)	
		Non-Operating	-40° to 140°F (-40° to 60°C)	
		Storage	-4 to 140°F (-20° to 60°C)	
		Maximum Wet Bulb Temperature	86°F (-30°C)	
	Relative Humidity**	Operating	10% to 90%	
		Shipping	10% to 90%	
		Storage	10% to 95%	

* All temperature ratings shown are for sea level. An altitude derating of 1.8°F per 1,000 ft (1°C per 304.8 m) to 10,000 ft (3048 m) is applicable. No direct sunlight allowed. Upper operating limit is 10,000 ft (3,048 m) or 70 Kpa/10.1 psia. Upper non-operating limit is 30,000 ft (9,144 m) or 30.3 KPa/4.4 psia.

**Storage maximum humidity of 95% is based on a maximum temperature of 113°F (45°C). Altitude maximum for storage corresponds to a pressure minimum of 70 KPa.

HP Smart Array E200i Controller		
	Disk Drive and Enclosure Interface	3G SAS (Serial Attached SCSI)
	SAS Connectors	2 internal (SFF8484) x4 wide port connectors
	Cache Memory Speed	DDR-1/266 MHz provides up to 4.2 GB/s maximum bandwidth.
	Server Interface	x4 2.5G PCIe provides 2 GB/s maximum bandwidth.
	SAS Speed	x8 3G SAS provides 2.4 GB/s maximum bandwidth.
	Cache Memory	40-bit 64 MB or 128 MB cache: ECC protection, battery-backed, and transportable
	Logical Drives Supported	Up to 32 logical volumes
	Maximum Logical Drive Capacity	144 GB (2 x 72 GB)
	Host Memory Addressing	64-bit, supporting greater than 4 GB server memory space
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware

Technical Specifications

NVIDIA Quadro FX 770M graphics adapter	Memory size	256 MB
	Memory type	GDDR-3
	Memory interface	128-bit
	Core clock	500 MHz
	Card type	MXM-II form factor
	I/O interface	PCIe (x16); Note: HP xw460c I/O slot is PCIe (x8 and x4)
	Max power consumption	35W
	Precision	128-bit color, 12-bit sub-pixel, 4X Full-Scene Anti-Aliasing
	API	DirectX 10, Shader Model 4.0; OpenGL2.1
	Upgradeable Firmware	Upgradeable Firmware
NVIDIA Quadro FX 3600M graphics adapter	Memory size	512 MB
	Memory type	GDDR-3
	Memory interface	256-bit
	Core clock	500 MHz
	Card type	MXM-HE form factor
	I/O interface	PCIe (x16); Note: HP xw460c I/O slot is PCIe (x8)
	Max power consumption	64W
	Precision	128-bit color, 12-bit sub-pixel, 8X Full-Scene Anti-Aliasing
	API	DirectX 10, Shader Model 4.0; OpenGL2.1
	Upgradeable Firmware	Upgradeable Firmware
NVIDIA Quadro FX 3700 graphics adapter	Memory size	512 MB
	Memory type	GDDR-3
	Memory interface	256-bit
	Core clock	600 MHz
	Card type	Standard PCIe full-length, double-wide
	I/O interface	PCIe (x16); Note: HP xw460c PCIe expansion slot is PCIe (x8)
	Max power consumption	78W
	Precision	128-bit color, 12-bit sub-pixel, 32X Full-Scene Anti-Aliasing
	API	DirectX 10, Shader Model 4.0; OpenGL2.1
	Upgradeable Firmware	Upgradeable Firmware

Technical Specifications

NVIDIA Quadro FX 5600 graphics adapter	Memory size	1.5 GB
	Memory type	GDDR-3
	Memory interface	384-bit
	Core clock	600 MHz
	Card type	Standard PCIe full-length, double-wide
	I/O interface	PCIe (x16); Note: HP xw460c PCIe expansion slot is PCIe (x8)
	Max power consumption	171W
	Precision	128-bit color, 12-bit sub-pixel, 32X Full-Scene Anti-Aliasing
	API	DirectX 10, Shader Model 4.0; OpenGL2.1
	Upgradeable Firmware	Upgradeable Firmware

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